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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/086,555	03/04/2002	Kanwal K. Raina	M4065.0206/P206A	7943

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EXAMINER

GUHARAY, KARABI

ART UNIT	PAPER NUMBER
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2879

DATE MAILED: 06/02/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/086,555

Applicant(s)

RAINA, KANWAL K.

Examiner

Karabi Guharay

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 12-25 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 12-25 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on ____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on ____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. ____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s). ____. |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449) Paper No(s) ____. | 6) <input type="checkbox"/> Other: |

Response to Amendment

Amendment B, filed on January 1, 2003, has been considered and entered.

Claims 12, 15, & 18 are amended. Claims 24, & 25 are added.

Amendment of claim 15, overcomes the objection of claim 15.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless -

(e) the invention was described in-

(1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effect under this subsection of a national application published under section 122(b) only if the international application designating the United States was published under Article 21(2)(a) of such treaty in the English language; or
(2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that a patent shall not be deemed filed in the United States for the purposes of this subsection based on the filing of an international application filed under the treaty defined in section 351(a).

Claims 12, 18-25 are rejected under 35 U.S.C. 102(e) as being clearly anticipated by Sandhu et al. Sandhu et al. disclose a field emission display as claimed. See FIG. 3, and respective portions of the specification.

Referring to claims 12 & 24, Sandhu et al. disclose a field emission display including an emitter 48 formed of a doped silicon (see col. 2, lines 19-23), a substrate 60 having a phosphor coating 62, said emitter having a current emission surface (layer 56) that has been treated with a plasma enhanced CVD hydrogenation process (see col. 2, lines 39-55) followed by a nitrogen infusion process (see col. 3, lines 8-11), thus inherently resulting reduced atomic concentration of oxygen.

Referring to claim 18, Sandhu et al. disclose a field emission display of claim 12 further including an insulative layer 50.

Referring to claim 19, Sandhu et al. disclose a field emission display of claim 18 wherein said insulative layer 50 includes silicon dioxide (see col. 2, lines 23-27, borophosphosilicate).

Referring to claim 20, Sandhu et al. disclose a field emission display of claim 18 further including a silicon grid (see col. 2, lines 27-29, layer 52) on said insulative layer 50.

Referring to claim 21, Sandhu et al. disclose a field emission display of claim 20 further including a metal layer (see col. 2, lines 64-66, layer 56).

Referring to claims 22, and 23, Sandhu et al. disclose a field emission display further including a passivation layer including a nitride (see col. 3, lines 8-11).

Regarding claim 25, though Sandhu et al. do not explicitly mention that the treated current emission surface (deposition of layer 56 on 48) has a reduced atomic concentration of oxygen and silicon, it has inherently a reduced atomic concentration of oxygen and silicon, since Sandhu et al. use same method of treating the current emitting surface.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 13-17 are rejected under 35 U.S.C. 103(a) as being obvious over Sandhu et al. in view of Kanicki.

Referring to claims 13-15, Sandhu et al. disclose a field emission display of claim 12 further including a base substrate (glass plate 44). Sandhu et al. do not disclose a field emission display wherein the base substrate includes a barrier film. Kanicki teaches that a barrier film (see page 119) on a glass substrate improves chemical durability. It would have been obvious to include a barrier film, as disclosed by Kanicki, on the glass plate, as disclosed by Kanicki, to improve chemical durability.

Referring to claim 16, Sandhu et al. disclose a field emission display further including a conductive layer 46.

Referring to claim 17, Sandhu et al. disclose a field emission display wherein said conductive layer 46 is metal. Sandhu et al. are silent as to which metal, however, the selection of a known material for a known purpose is within the skill of the art.

Response to Arguments

Applicant's arguments filed on January 01, 2003, have been fully considered but they are not persuasive for following reasons:

First of all, applicant argues that Sandhu et al. use Plasma enhanced chemical vapor deposition method for depositing a layer 56 on the current emitting cone 48, not for treating a current emission surface.

However, surface treatment with the aid of PECVD, which utilizes gas discharge is basically depositing layers on the surface. PECVD method is for depositing layers on a surface (as obviously suggested by its name). Thus for treating current emission surface by PECVD, or for depositing layer on the surface is basically has no difference.

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Also applicant, on page 3, lines 7-16 of specification, mentions that PECVD hydrogenation process infuses hydrogen on the surface, and further infusing nitrogen plasma deposits layer on the tip surface. Thus treating a surface by PECVD is depositing layer on a surface by PECVD.

Second of all, applicant argued that there is no teaching of "having a reduced atomic concentration of oxygen" as claimed in claims 12, and 24 in prior art reference of Sandhu et al.

Sandhu et al. treated current emitter 48 by PECVD hydrogenation followed by nitrogen infusion, as claimed by applicant, thus have certain atomic concentration of oxygen and silicon. The process, as claimed, does not necessarily results an oxygen and silicon concentration different from that of prior art reference of Sandhu et al.

Finally applicant argued that Sandhu uses nitrogen infusion for nitridation, not for treating, thus Sandhu does not have " a treated current emission surface resulting from nitrogen infusion. However, examiner respectfully disagrees. Applicant admits that Sandhu uses nitrogen infusion to the surface 56 of the current emitter 48 by PECVD method. Nitridation is a process of treatment of a surface, thus Sandhu's current emitting surface is being treated with nitrogen infusion by PECVD.

Conclusion

THIS ACTION IS MADE FINAL. Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within

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TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Contact Information

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Karabi Guharay whose telephone number is (703) 305-1971. The examiner can normally be reached on Monday-Friday 8:30 am - 5:00 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Nimeshkumar D. Patel can be reached on (703) 305-4794. The fax phone number for the organization is (703) 308-7382.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0956.

K.G.
Karabi Guharay
Patent Examiner
Art Unit 2879


ASHOK PATEL
PRIMARY EXAMINER